EXPERIMENT NO.

1 PROGRAM:

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Roll no:25

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```
#include <stdio.h>
    #include<conio.h>
                                                               do
                                                        17
                                                        18
    int STK[100], top= -1, i, n, x, ch;
                                                                 printf("\n Stack Operations: \n");
                                                        19
    void Push();
                                                                  printf("\n1.Push\n 2.Pop\n 3.Peep\n4.
                                                        20
    void Pop();
                                                             Display\n 5.Exit \n");
    void Peep();
                                                                 printf("\n Enter your choice: ");
                                                        21
    void Display();
                                                                 scanf("%d", &ch);
switch (ch)
                                                        22
                                                        23
10 void main()
                                                        24
11
                                                        25
                                                                 case 1:
12
                                                        26
                                                                    Push();
      printf("\n Implementation of STACK using
                                                        27
                                                                    break;
    array \n");
                                                        28
29
                                                                  case 2:
      printf("Enter size of stack (Maximum size =
                                                                    Pop();
    100): ");
                                                        30
      scanf("%d", &n);
                                                                    break;
15
                                                        31
                                                                  case 3:
16
                                                        32
                                                                    Peep();
17
      do
                                                        33
18
                                                                    break;
                                                        34
         printf("\n Stack Operations: \n");
printf("\n1.Push\n 2.Pop\n 3.Peep\n4.
                                                                  case 4:
19
                                                        35
                                                                    Display();
20
                                                        36
    Display\n 5.Exit \n");
                                                                    break;
                                                        37
                                                                 case 5:
         printf("\n Enter your choice: ");
21
                                                                    printf("Exit: Program Finished ");
                                                        38
22
         scanf("%d", &ch);
                                                        39
                                                                    break;
         switch (ch)
                                                        40
                                                                  default:
24
                                                        41
25
                                                                    printf("Please enter a valid choide: 1, 2,
         case 1:
                                                             3, 4, 5 \n");
26
           Push();
27
                                                        42
           break;
                                                        43
                                                               } while (ch != 5);
28
         case 2:
                                                        44 }
29
           Pop();
                                                        45
30
           break,
                                                        46
                                                             // PUSH FUNCTION
31
         case 3:
                                                             void Push()
           Peep();
32
```

```
74
                                                              } while (ch != 5);
                                                        43
 75
                                                       44 }
     // PEEP FUNCTION
                                                       45
     void Peep()
                                                       46
                                                            // PUSH FUNCTION
 78
                                                       47
                                                            void Push()
 79
       printf(" Enter the position of the element
                                                        48
     from the top which you want to peep: ");
                                                       49
                                                              if (top >= n - 1)
       scanf("%d", &i);
 80
                                                       50
 81
       if (top - i + 1 < 0)
                                                       51
                                                                printf(" Stack Overflow \n");
 82
                                                       52
 83
         printf(" Stack Underflow on Peep \n");
                                                       53
                                                              else
 84
                                                       54
 85
       else
                                                       55
                                                                printf(" Enter the element to be pushed: ");
 86
                                                       56
                                                                scanf("%d", &x);
         printf(" The %d element from the top is: %d
 87
                                                       57
     \n", i, STK[top- i + 1]);
                                                                top++;
                                                       58
                                                                STK[top] = x;
 88
                                                        59
 89
                                                       60
 90
                                                       61
     // DISPLAY FUNCTION
                                                       62
                                                            // POP FUNCTION
     void Display()
                                                       63
                                                            void Pop()
 93
                                                       64
 94
       if (top < 0)
                                                       65
                                                              if (top < 0)
 95
                                                       66
 96
          printf(" Stack is empty \n");
                                                       67
                                                                printf(" Stack Underflow \n");
 97
                                                       68
 98
       else
                                                       69
                                                              else
 99
                                                       70
100
         printf(" The element in the stack are:");
                                                                printf(" The popped element is: %d \n",
                                                        71
101
          for (i =top; i > -1; i-)
                                                            STK[top]);
102
                                                       72
            printf("\n %d \n", STK[i]);
                                                                top--;
103
                                                       73
104
                                                        74
105
106
```

OUTPUT:

```
4.Display
5.Exit
                                                                           Implementation of STACK using array
Enter size of stack (Maximum size = 100): 5
Enter your choice: 1
Enter the element to be pushed: 3
                                                                           Stack Operations:
Stack Operations:
                                                                           1.Push
                                                                           2.Pop
 .Push
                                                                           Peep
2.Pap
                                                                           4.Display
5.Exit
4.Display
5.Exit
                                                                            Enter your choice: 1
                                                                           Enter the element to be pushed: 3
Enter your choice: 1
Enter the element to be pushed: 4
                                                                           Stack Operations:
Stack Operations:
                                                                           1.Push
                                                                           2.Pop
 .Push
                                                                           3.Peep
2.Pap
3.Peep
                                                                           Display
                                                                           5.Exit
4.Display
5.Exit
                                                                           Enter your choice: 1
                                                                           Enter the element to be pushed: 4
Enter your choice: 2
The popped element is: 4
                                                                           Stack Operations:
Stack Operations:
                                                                           1.Push
                                                                           2.Pap
3.Peep
1.Push
2.Pap
                                                                           4.Display
3.Peep
                                                                           5.Exit
4.Display
5.Exit
                                                                           Enter your choice: 2
                                                                            The popped element is: 4
Enter your choice: 3
Enter the position of the element from the top which you want to p
                                                                           Stack Operations:
eep: 1
The 1 element from the top is: 3
                                                                           1.Push
                                                                          2.Pop
3.Peep
4.Display
Stack Operations:
 .Push
                                                                           5.Exit
2.Pap
Peep
                                                                           Enter your choice: 3
4.Display
                                                                           Enter the position of the element from the top which you want to p
5.Exit
                                                                           eep: 1
The 1 element from the top is: 3
Enter your choice: 4
 The element in the stack are:
                                                                           Stack Operations:
                                                                           1.Push
Stack Operations:
                                                                           2.Pop
                                                                           3.Peep
 l.Push
2.Pap
                                                                           4.Display
                                                                           5.Exit
Peep
4.Display
                                                                           Enter your choice: 4
5.Exit
                                                                           The element in the stack are:
Enter your choice: 5
Exit: Program Finished
[Program finished]
                                                                           Stack Operations:
```